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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER

EWALD, MARIA VERONICA

ART UNIT	PAPER NUMBER
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1722

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/761,486

Applicant(s)

HARPER ET AL.

Examiner

Maria Veronica D. Ewald

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 15-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 27-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/06&1/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

13. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-14 and 27-30, drawn to an apparatus for imprinting an embossment on a film, classified in class 425, subclass 385.
- II. Claims 15-26, drawn to a method of embossing, classified in class 264, subclass 284.

The inventions are distinct, each from the other for the following reasons

Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by another materially different apparatus such as an apparatus with a different heating element, found in a different location, for pre-heating the embossable film or an apparatus with a die that does not have an embossing foil. Another example to demonstrate distinctness would be that certain steps of the process as claimed can be practiced by hand such as transporting the substrate through the heat tunnel.

Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper. Further, a

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different search is required to examine each invention. Restriction for examination purposes as indicated is proper.

During a telephone conversation between Examiner Jeffrey Wollschlager and Atty. Dan Ovanezian on February 16, 2006, a provisional election was made without traverse to prosecute the invention of Group I, claims 1-14 and 27-30. Affirmation of this election must be made by applicant in replying to this Office action. Claims 15-26 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Objections

14. Claim 6 objected to because of the following informalities: Claim 6 states "...a ring portion disposed between the ball bushing and the embossing foil, wherein a thermal expansion to secure the ring portion to the embossing foil and to align a centerline..." This above phrase in claim 6 is unclear and seems to be missing another term or word inserted before and/or after "thermal expansion." Appropriate correction is required.

Claim Rejections - 35 USC § 112

15. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

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regards as the invention. Claim 5 recites the limitation "the disk substrate" in lines 3 – 4 of the claim. There is insufficient antecedent basis for this limitation in the claim and thus, appropriate correction of claim 5 is necessary. Examiner is therefore, interpreting the limitation as "the substrate."

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 – 2, 4 – 5, 9, 12 – 14, and 27 – 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujii (U.S. 5,571,473). Fujii teaches an assembly comprising: a heater to pre-heat an embossable film, disposed above a substrate, to an approximate embossing temperature (item 31 – figure 1; column 2, lines 49 – 51, 63 – 67), a die assembly having an embossing foil to imprint the embossable film (item 4 – figure 1; column 3, lines 64 – 67; column 4, lines 1 – 5); and a heat tunnel disposed between the heater and the die assembly to maintain the approximate embossing temperature (item

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35 – figure 1; column 3, lines 30 – 40, 45 – 58); wherein there is a transporting device for the substrate (figure 1).

With respect to claims 4 – 5 and 9, the reference further teaches that the transporting device is a servo slide (figure 1) and the servo slide comprises a frame; a holder plate to receive the substrate and at least two fingers to secure the substrate within the holder plate, the at least two fingers to maintain a precise position of the substrate (figure 1; column 3, lines 64 – 67; column 4, lines 1 – 5) and wherein there is a cooling station disposed near the die assembly (column 3, lines 64 – 67; column 4, lines 1 – 5).

With respect to claims 12 – 14, Fujii further teaches that the heat tunnel comprises an inductive heat tunnel (column 3, lines 1 – 15); wherein the heat tunnel comprises an IR heat tunnel (column 3, lines 30 – 40) and wherein the substrate comprises a disk (column 3, lines 64 – 67).

With respect to claims 27 – 30, Fujii teaches an assembly comprising: a means for pre-heating an embossable film disposed above a substrate to an approximate embossing temperature (item 31 – figure 1; column 2, lines 49 – 51, 63 – 67); and a means for transporting the substrate to an imprinting die assembly while maintaining the approximate embossing temperature (items 31 and 35 – figure 1; column 3, lines 15 – 30, 45 – 50); wherein the apparatus is further comprised of a means for centering the substrate relative to an embossing foil disposed within the imprinting die set (figure 1); wherein there are means for inspecting an embossed pattern on the embossed film and there is means for cooling the substrate (column 3, lines 65 – 67).

Claims 1 – 2, 4 – 5, 9, 12 – 13, and 27 – 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Spengler (U.S. 2003/0030188 A1). Spengler teaches an assembly comprising: a heater to pre-heat an embossable film, disposed above a substrate, to an approximate embossing temperature (item 50 – figure 1; paragraph 0027), a die assembly having an embossing foil to imprint the embossable film (item 1 – figure 1; paragraphs 0028 – 0029); and a heat tunnel disposed between the heater and the die assembly to maintain the approximate embossing temperature (item 52 – figure 1; paragraph 0027); wherein there is a transporting device for the substrate (figure 1; paragraph 0046).

With respect to claims 4 – 5 and 9, the reference further teaches that the transporting device is a servo slide (figure 1) and the servo slide comprises a frame; a holder plate to receive the substrate and at least two fingers to secure the substrate within the holder plate, the at least two fingers to maintain a precise position of the substrate (item 60 – figure 1; paragraph 0027) and wherein there is a cooling station disposed near the die assembly (figures 2 – 3; paragraphs 0035 and 0051).

With respect to claims 12 – 13, Spengler further teaches that the heat tunnel comprises an inductive heat tunnel (figure 1; paragraph 0039) and wherein the heat tunnel comprises an IR heat tunnel (figure 1; paragraph 0039).

With respect to claims 27 – 30, Spengler teaches an assembly comprising: a means for pre-heating an embossable film disposed above a substrate to an approximate embossing temperature (items 50 and 52 – figure 1; paragraph 0039); and

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a means for transporting the substrate to an imprinting die assembly while maintaining the approximate embossing temperature (item 60 – figure 1; paragraph 0038); wherein the apparatus is further comprised of a means for centering the substrate relative to an embossing foil disposed within the imprinting die set (item 1 – figure 1; paragraphs 0028 – 0029); wherein there are means for inspecting an embossed pattern on the embossed film and there is means for cooling the substrate (paragraphs 0035, 0049 – 0051).

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spengler in view of Chou (U.S. 6,482,742). Spengler teaches the characteristics previously described but does not teach that the transport device is a vacuum chuck attached to a robotic arm and that the die assembly is used to imprint the embossable film for production of a semiconductor device.

In a method to imprint the thin film covering a substrate using a mold with a plurality of protruding features, Chou teaches that the substrate is transported onto the mold using a vacuum chuck (column 6, lines 40 – 45). The chuck has a plurality of small holes on its surface, such that it is connected to an air source or vacuum. The creation

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of a vacuum allows the substrate or the silicon wafer, as described by Chou, to be firmly adhered to the chuck surface (column 6, lines 45 – 55). This reads on the Applicant's claims that the transport device is a vacuum chuck attached to a robotic arm and that the die assembly is used to imprint the embossable film for production of a semiconductor device.

Therefore, it would have been obvious to one of ordinary skill in the art to configure the transport device of Spengler as a vacuum chuck and also configure the mold assembly of Spengler to imprint the film of a semiconductor device, for the purposes of ensuring that the substrate is firmly adhered to the transport device and for imprinting a silicon wafer used in a semiconductor device.

Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spengler in view of Amo (U.S. 5,888,433). Spengler teaches the characteristics previously described but does not teach the specifics of the die assembly nor teaches that the die assembly is used to imprint an embossable film used for the production of an optical recording disk.

In a method to properly center two substrates used to form a storage disk such as a CD or DVD, wherein the substrate is an optical recording disk, Amo teaches the use of a holding table with a disk-shaped receiver supported by struts and a boss which is inserted and disposed in a central hole (column 5, lines 35 – 40). In addition, the struts for supporting the receiver are fitted to a base (column 5, lines 40 – 45). The boss or elongated portion protrudes through an inserted substrate and substantially aligns the

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substrates (column 7, lines 15 – 25). This reads on the Applicant's claims that the substrate is an optical recording disk and further reads on the claim that assembly be further comprised of an elongated shaft with a tapered mandrel end portion to receive the substrate having a hole defined by an inner dimension edge of the substrate; a ball bushing disposed around the elongated shaft; and a ring portion disposed between the ball bushing and the embossing foil, wherein a thermal expansion to secure the ring portion to the embossing foil and to align a centerline of the embossing foil with a centerline of the substrate.

Therefore it would have been obvious to one of ordinary skill in the art to reconfigure the press dies of Spengler to be used for imprinting a disk substrate used as an optical recording disk as taught by Amo and to be reconfigured such that it incorporates the tapered shaft or boss of Amo such that the substrate and thin film are properly aligned with the dies, such that the disk is adequately imprinted or embossed.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Spengler in view of Bryja, et al. (U.S. 6,793,476). Spengler teaches the characteristics previously described but do not teach that the die assembly is actuated via a gas bladder. In a method to age or emboss bricks, Bryja, et al. teach the use of a conveyor system and a set of embossing devices (figure 1; column 4, lines 55 – 65). The embossing devices are comprised of a cap plate, an inflatable bladder, a die support and a die box (column 5, lines 5 – 25). The die support is actuated in a downwardly vertical position, such that the die box is pressed into the brick, effecting an aged or embossed texture to the brick

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(column 5, lines 30 – 35). The die is actuated by an inflatable bladder (item 56 – figure 3), which is connected to an air supply hose. The die is of conventional construction and as taught by Bryja, et al. has been previously used for effecting vibration isolation of machinery (column 5, lines 15 – 20). This reads on the Applicant's claim that there is a gas actuation bladder connected to the die assembly.

Therefore, it would have been obvious to one of ordinary skill in the art to configure the dies of Spengler to be actuated with an air inflatable bladder, as taught by Bryja, et al., for the purpose of actuating the dies and for effecting or absorbing the vibration of the moving dies such that the movement does not misalign the die and the substrate.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Spengler in view of Korenaga, et al. (U.S. 6,989,114). Spengler teaches the characteristics previously described but do not teach that there is a vision device to inspect the imprint pattern on the substrate.

In a method to imprint a substrate or workpiece using a quartz mold, Korenaga, et al. teach that the workpiece is imprinted with a grooved micro-pattern (column 5, lines 1 – 10, 20 – 25). The grooved pattern can be observed by using an optical microscope and an electron microscope to ensure that the pattern covers the entire surface of the substrate (column 5, lines 20 – 25). This reads on the Applicant's claim that there is a vision device used to inspect the imprint pattern on the substrate.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to include a vision inspection device, such as an optical microscope as taught by Korenaga, et al. to see if the grooved or textured pattern of the mold of Spengler has adequately transferred onto the entire surface of the cover layer or thin film of Spengler.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Veronica D. Ewald whose telephone number is 571-272-8519. The examiner can normally be reached on M-F, 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joseph S. Del Sole
JOSEPH S. DEL SOLE
PRIMARY EXAMINER
5/11/06

MVE